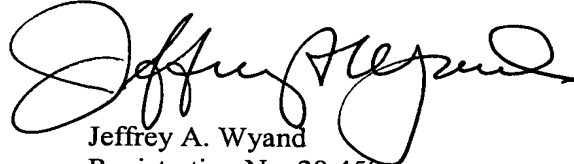


REMARKS

The foregoing Amendment corrects translational errors and conforms the claims to United States practice. No new matter is added.

Respectfully submitted,

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

TADAO YAMAGUCHI

Application No. 09/924,770

Art Unit: Unknown

Filed: August 9, 2001

Examiner: Unknown

For: DISC TYPE ECCENTRIC ROTOR
AND FLAT TYPE VIBRATOR
MOTOR HAVING THE ROTOR

**AMENDMENTS TO SPECIFICATION, CLAIMS AND
ABSTRACT MADE VIA PRELIMINARY AMENDMENT**

Amendments to existing claims:

1. (Amended) A ~~disc-type-shaped~~ eccentric rotor having at least two or more air-core coils and generating a difference in centrifugal forces by the rotation of the rotor ~~itself~~, the rotor comprising:

a ~~flat-type~~ commutator member having a central shaft insertion through hole ~~in the center thereof~~;

a plurality of commutator land segments ~~formed~~ located around the shaft insertion through hole on a first side of the ~~flat-type~~ commutator member;

wound ~~type~~ air-core coil arrangement guides ~~formed~~ outside the shaft insertion through hole on a second side of the ~~flat-type~~ commutator member;

air-core coil end portion connection lands ~~formed~~ arranged circumferentially on the second side of the ~~flat~~ type commutator member;

a shaft holder installed around the shaft insertion through hole on the second side of the ~~flat-type~~ commutator member; and

wound ~~type~~ air-core coils installed at the wound ~~type~~ air-core coil arrangement guides and having the end portions ~~thereof~~ connected to the air-core coil end portion connection lands.

2. (Amended) The rotor as claimed in claim 1, wherein the air-core coils are radially arranged at ~~a predetermined angle~~ an angular interval and at least one air-core coil is ~~formed as a printed wiring-type~~ air-core coil.

3. (Amended) The rotor as claimed in claim 2, wherein the air-core coils comprise one printed wiring-type air-core coil and two wound-type air-core coils, and the air-core coils ~~are arranged so as~~ do not to overlap one another.

4. (Amended) The rotor as claimed in claim 2, wherein the air-core coils comprise two printed wiring-type air-core coils and one wound-type air-core coil, and the air-core coils ~~are arranged so as~~ do not to overlap one another.

5. (Amended) The rotor as claimed in claim 1, ~~wherein including~~ wound-type air-core coil arrangement guide apertures and reinforcement holes ~~are formed~~ on the printed wiring-type commutator member, ~~and wherein~~ the reinforcement holes and the wound-type air-core coil arrangement guide apertures are respectively connected through grooves.

6. (Amended) The rotor as claimed in claim 4, wherein the shaft holder and the wound-type air-core coil arrangement guides ~~are integrally formed of the same resin by~~ outsert molding on integral with the flat-type commutator member.

7. (Amended) A disc-type-shaped eccentric rotor having at least one or more wound-type air-core coils coil and generating a difference in centrifugal forces by the rotation of the rotor ~~itself~~, the rotor comprising:

a flat-type commutator member having a central shaft insertion through hole ~~in the center thereof~~;

a plurality of commutator land segments ~~formed~~ located around the shaft insertion through hole on a first side of the flat-type commutator member;

a shaft holder installed around the shaft insertion through hole on the second side of the flat-type commutator member;

wound-type air-core coil end portion connection lands ~~formed~~ arranged circumferentially on the second side of the flat-type commutator member;

at least one wound-type air-core coil installed outside the shaft holder on the second side of the flat-type commutator member and having the end portions thereof connected to the wound-type air-core coil end portion connection lands; and

~~and a tungsten alloy eccentric weight formed of tungsten alloy to be installed within the thickness of the wound-type air-core coil on the second side of the flat-type commutator member, the weight fixed and adhered to the flat-type commutator member by means of~~ with a resin.

8. (Amended) The rotor as claimed in claim 7, wherein at least one printed wiring type-coil is ~~formed~~ located at a position of the flat-type commutator member where the eccentric weight is ~~installed~~ located.

9. (Amended) A flat-type vibrator motor comprising:
a disc-type-shaped eccentric rotor having at least one air-core coil and generating a difference in centrifugal forces by the rotation of the rotor itself,
a shaft ~~for~~ supporting the eccentric rotor;
a magnet ~~for~~ providing a magnetic field for the rotor via a an axial gap therebetween in an axial direction between the magnet and the rotor,
a brush ~~arranged~~ inside the magnet ~~for~~ providing electric power to the air-core coil through the flat-type commutator member, and
a housing accommodating ~~all the above elements~~ rotor, the shaft, the magnet, and the brush.

10. (Amended) The vibrator motor as claimed in claim 9, wherein the shaft is fixed at ~~one~~ a first side of the housing and including a member for preventing the eccentric rotor from moving in a radial direction ~~is installed at the other~~ a second side of the housing.

Amendments to the abstract:

Abstract of the Disclosure

The present invention provides a disc-type-shaped eccentric rotor having at least two air-core coils, ~~the~~. The rotor ~~comprising~~ includes a flat-type commutator member having a central shaft insertion through hole ~~in the center thereof, a plurality of commutator land segments formed arranged~~ around the shaft insertion through hole on a first side of the flat type commutator member, wound-type air-core coil arrangement guides ~~formed~~ located around the shaft insertion through hole on a second side of the flat-type commutator member, air-core coil end portion connection lands ~~formed~~ arranged circumferentially on the second side of the flat-type commutator member, a shaft holder installed around the shaft insertion through hole on the second side of the flat-type commutator member, and wound-type air-core coils installed at the wound-type air-core coil arrangement guides and having the end portions ~~thereof~~ connected to the air-core coil end portion connection lands. The air-core coils of bigger sizes are uniformly arranged on the commutator member, so that high efficiency and easy Installation can be ~~obtained~~ achieved. The arrangement of the air-core coils offsets the center of gravity from the geometrical centroid of the rotor, and there is no need for an additional eccentric member. ~~Otherwise, since~~ Since the printed wiring-type air-core coil is thinner than the wound-type air-core coil, an eccentric weight is installed on the

printed wiring-type air-core coil so that a great amount of vibration may be obtained during rotation of the rotor.



PATENT
Attorney Docket No. 401338/YPLEE

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For: DISC TYPE ECCENTRIC ROTOR
AND FLAT TYPE VIBRATOR
MOTOR HAVING THE ROTOR

PENDING CLAIMS AFTER ENTRY OF PRELIMINARY AMENDMENT

1. A disc-shaped eccentric rotor having at least two air-core coils and generating a difference in centrifugal forces by the rotation of the rotor, the rotor comprising:
 - a flat commutator member having a central shaft insertion through hole;
 - a plurality of commutator land segments located around the shaft insertion through hole on a first side of the flat commutator member;
 - wound air-core coil arrangement guides outside the shaft insertion through hole on a second side of the flat commutator member;
 - air-core coil end portion connection lands arranged circumferentially on the second side of the type commutator member;
 - a shaft holder installed around the shaft insertion through hole on the second side of the flat commutator member; and
 - wound air-core coils installed at the wound air-core coil arrangement guides and having end portions connected to the air-core coil end portion connection lands.
2. The rotor as claimed in claim 1, wherein the air-core coils are radially arranged at an angular interval and at least one air-core coil is a printed wiring air-core coil.
3. The rotor as claimed in claim 2, wherein the air-core coils comprise one printed wiring air-core coil and two wound air-core coils, and the air-core coils do not overlap one another.
4. The rotor as claimed in claim 2, wherein the air-core coils comprise two printed wiring air-core coils and one wound air-core coil, and the air-core coils do not overlap one another.

5. The rotor as claimed in claim 1, including wound air-core coil arrangement guide apertures and reinforcement holes on the printed wiring commutator member, wherein the reinforcement holes and the wound air-core coil arrangement guide apertures are respectively connected through grooves.

6. The rotor as claimed in claim 4, wherein the shaft holder and the wound air-core coil arrangement guides are integral with the flat commutator member.

7. A disc-shaped eccentric rotor having at least one wound air-core coil and generating a difference in centrifugal forces by the rotation of the rotor, the rotor comprising:
a flat commutator member having a central shaft insertion through hole;
a plurality of commutator land segments located around the shaft insertion through hole on a first side of the flat commutator member;

a shaft holder installed around the shaft insertion through hole on the second side of the flat commutator member;

wound air-core coil end portion connection lands arranged circumferentially on the second side of the flat commutator member;

at least one wound air-core coil installed outside the shaft holder on the second side of the flat commutator member and having end portions connected to the wound air-core coil end portion connection lands; and

a tungsten alloy eccentric weight within the wound air-core coil on the second side of the flat commutator member and adhered to the flat commutator member with a resin.

8. The rotor as claimed in claim 7, wherein at least one printed wiring coil is located at a position of the flat commutator member where the eccentric weight is located.

9. A flat vibrator motor comprising:

a disc-shaped eccentric rotor having at least one air-core coil and generating a difference in centrifugal forces by the rotation of the rotor,

a shaft supporting the eccentric rotor;

a magnet providing a magnetic field for the rotor via an axial gap between the magnet and the rotor,

a brush inside the magnet providing electric power to the air-core coil through the flat commutator member, and

a housing accommodating the rotor, the shaft, the magnet, and the brush.

10. The vibrator motor as claimed in claim 9, wherein the shaft is fixed at a first side of the housing and including a member for preventing the eccentric rotor from moving in a radial direction installed at a second side of the housing.